WHAT IS CLAIMED IS:

1. A method for generating trace information of an information processing device, wherein the information processing device includes a processing unit and an interface device, wherein the processing unit generates operational information when branching occurs during processing, and wherein the interface device has a buffer circuit for receiving the operational information of the branching from the processing unit, the method comprising the steps of:

generating an absolute branching destination address each time a branching occurs when the processing unit performs processing;

storing the absolute branching destination address in the buffer circuit;

generating a flag based on the absolute branching destination address;

storing the flag in the buffer circuit in association with the absolute branching destination address;

generating a relative branching destination address based on the stored absolute branching destination address; and

outputting, based on the flag, either one of the absolute branching destination address and the relative branching destination address.

2. The method according to claim 1, further comprising the steps of:

deleting a predetermined absolute branching destination address stored in the buffer circuit when the absolute branching destination addresses fully occupy the buffer circuit; and

shifting the flag associated with the deleted predetermined absolute branching destination address to output the absolute branching destination address.

3. The method according to claim 2, further comprising the steps of:

based on the flag, serial-converting either one of the absolute branching destination address and the relative branching destination address; and

outputting the serial-converted branching destination address.

4. An information processing device comprising:

a processing unit for generating a branching occurrence signal and an absolute branching destination address each time a branching occurs during processing;

a determination circuit connected to the processing unit for comparing a formerly generated absolute branching destination address and a subsequently generated absolute branching destination address and generating a flag in accordance with comparison result;

a buffer circuit connected to the processing unit and the determination circuit for sequentially associating the absolute branching destination address with the flag, sequentially storing the associated absolute branching destination address and the flag, and outputting the absolute branching destination address and the flag in order stored; and

an output circuit connected to the buffer circuit for generating a relative branching destination address based on the stored absolute branching destination address, wherein the output circuit outputs, based on the flag, either one of the absolute branching destination address and the relative

branching destination address.

5. The device according to claim 4, further comprising:

a control circuit connected to the processing unit, the determination circuit, and the buffer circuit for deleting a predetermined absolute branching destination address stored in the buffer circuit when the absolute branching destination addresses fully occupy the buffer circuit and for shifting the flag associated with the deleted predetermined absolute branching destination address to output the absolute branching destination address from the output circuit.

6. The device according to claim 5, wherein the control circuit generates relative branching occurrence state information or absolute branching occurrence state information based on the branching occurrence signal and the flag and generates address deletion state information when an address in the buffer circuit is deleted.

7. The device according to claim 4, wherein the determination circuit computes a relative value between the formerly generated absolute branching destination address which is most recently stored in the buffer circuit and the subsequently generated absolute branching destination address received from the processing unit, and wherein

the determination circuit generates a first flag to output the absolute branching destination address from the output circuit when the relative value is included in a predetermined range, and generates a second flag to output the relative branching destination address from the output circuit when the relative value is not included in the

predetermined range.

8. The device according to claim 4, wherein the output circuit includes:

an absolute address buffer connected to the buffer circuit for storing a first absolute branching destination address received from the buffer circuit;

a subtraction circuit connected to the absolute address buffer and the buffer circuit for computing a relative branching destination address using the first absolute branching destination address and a second absolute branching destination address, which is next output from the buffer circuit after the first absolute branching destination address;

a relative address buffer connected to the subtraction circuit for storing the relative branching destination address; and

a serial-conversion circuit connected to the absolute address buffer and the relative address buffer for serial-converting either one of the first absolute branching destination address and the relative branching destination address and for thereafter outputting the serial-converted branching destination address.

9. An information processing device comprising:

a processing unit for generating a branching occurrence signal, an absolute branching destination address, and a command fetch number each time a branching occurs during processing;

a determination circuit connected to the processing unit for comparing a formerly generated absolute branching destination address and a subsequently generated absolute branching destination address and generating a flag in

accordance with comparison result;

a buffer circuit connected to the processing unit and the determination circuit for associating the absolute branching destination address with the flag and the command fetch number, sequentially storing the associated absolute branching destination address, the flag, and the command fetch number, and outputting the absolute branching destination address, the flag, and the command fetch number in order stored; and

an output circuit connected to the buffer circuit for generating a relative branching destination address based on the stored absolute branching destination address, wherein the output circuit outputs the command fetch number and, based on the flag, either one of the absolute branching destination address and the relative branching destination address.

10. The device according to claim 9, further comprising:

a control circuit connected to the processing unit, the determination circuit, and the buffer circuit for deleting a predetermined absolute branching destination address stored in the buffer circuit when the absolute branching destination addresses fully occupy the buffer circuit and for shifting the flag associated with the deleted predetermined absolute branching destination address to output the absolute branching destination address from the output circuit.

11. The device according to claim 10, wherein the control circuit generates relative branching occurrence state information or absolute branching occurrence state information based on the branching occurrence signal and the

flag and generates address deletion state information when an address in the buffer circuit is deleted.

12. The device according to claim 9, wherein the determination circuit computes a relative value between the formerly generated absolute branching destination address which is most recently stored in the buffer circuit and the subsequently generated absolute branching destination address received from the processing unit, and wherein the determination circuit generates a first flag to output the absolute branching destination address from the output circuit when the relative value is included in a predetermined range, and generates a second flag to output the relative branching destination address from the output circuit when the relative value is not included in the predetermined range.

13. The device according to claim 9, wherein the output circuit includes:

an absolute address buffer connected to the buffer circuit for storing a first absolute branching destination address received from the buffer circuit;

a subtraction circuit connected to the absolute address buffer and the buffer circuit for computing a relative branching destination address using the first absolute branching destination address and a second absolute branching destination address, which is next output from the buffer circuit after the first absolute branching destination address;

a relative address buffer connected to the subtraction circuit for storing the relative branching destination address; and

a serial-conversion circuit connected to the absolute

address buffer and the relative address buffer for serial-converting the command fetch number, outputting the serial-converted command fetch number, serial-converting either one of the first absolute branching destination address and the relative branching destination address, and outputting the serial-converted branching destination address.

14. An information processing system comprising:

a processing unit for generating a branching occurrence signal and an absolute branching destination address each time a branching occurs during processing;

a determination unit connected to the processing unit for comparing a formerly generated absolute branching destination address and a subsequently generated absolute branching destination address and generating a flag in accordance with the comparison result;

a buffer unit connected to the processing unit and the determination unit for associating the absolute branching destination address with the flag, sequentially storing the associated absolute branching destination address and flag, and outputting the absolute branching destination address and the flag in order stored; and

an output unit connected to the buffer circuit for generating a relative branching destination address based on the stored absolute branching destination address, wherein the output unit outputs, based on the flag, either one of the absolute branching destination address and the relative branching destination address.